Transport Canada Transports Canada

TP 1624

Marine Casualty Investigations

Enquêtes sur les accidents maritimes

Investigation Report to the Minister pursuant to sections 542 or 545 of the Canada Shipping Act

Rapport d'investigation au Ministre conformément aux articles 542 ou 545 de la Loi sur la marine marchande du Canada

Canada

Ce rapport est aussi disponible en français

REPORT OF INVESTIGATION INTO THE CIRCUMSTANCES ATTENDING THE LOSS OF A PILOT WHILST ATTEMPTING TO BOARD THE PHILIPPINE BULK CARRIER "GENERAL BONIFACIO" AT ST. GEORGES BAY, NOVA SCOTIA, NOVEMBER 20, 1987.

REPORT No. 497

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REPORT OF INVESTIGATION INTO THE CIRCUMSTANCES ATTENDING THE LOSS OF A PILOT WHILST ATTEMPTING TO BOARD THE PHILIPPINE BULK CARRIER "GENERAL BONIFACIO" AT ST. GEORGES BAY, NOVA SCOTIA, NOVEMBER 20, 1987.

Particulars of Vessels

Name	"GENERAL BONIFACIO"	"SHARON ALEXANDER" ex "CHAPEL HILL"(1987)
Official number	228975	809406
Port of Registry	Manila	Sydney, NS
Call sign	DZPP	VO4618
Gross tonnage	6,792.01	58.66
Net tonnage	4,281.10	23.62
Length	117.90 m	17.81 m
Breadth	20.50 m	5.23 m
Depth	11.00 m	2.19 m
Draught	7.18 m fore and aft	
Built	1983, Norway	1973, New Orleans, USA
Type	Bulk carrier	Pilot vessel
Propulsion	One Stork Werkspoor 6 cylinder, four stroke turbo-charged, single-acting diesel engine driving a control-lable-pitch propeller capable of attaining 3,380 kW. The engines are controlled from the wheel-house.	Two GM 12V-71T diesel engines driving twin fixed-pitch propellers capable of attaining 375 kW. The engines are controlled from the wheel-house.
Crew	23	2
Classification	1A1 "Bulk carrier" ICE 1A, ICE 1B, EO with DnV.	Class XI

Owner	A/S Kristian Jebsens Rederi Bergen, Norway	176077 Nova Scotia Ltd North Sydney, NS B2A 3M4
Operator	Filscon Shipping Inc Maketi, Manila Philippines	Atlantic Pilotage Authority Halifax, NS

Navigating Equipment

Radar 1	Atlas 8500 Anti-collision	Furuno Konel
Radar 2	Krupp Atlas	Furuno 1700
Loran C	Decca 1024	Furuno LC90
Direction finder	Koden	-
Echo sounder	Simrad ED162	-
VHF radiotelephone	Sailor (2)	Icom ICM 80 (2)
SSB radiotelephone	Skanti	-

Description of Vessels

The "GENERAL BONIFACIO" is a self-unloading bulk carrier employed in shipping salt from Nova Scotia to ports of the United States eastern seaboard. The bridge, engine-room and accommodation are all located aft of four cargo holds.

The vessel is classed with Det Norske Veritas and all required certificates were on board and valid.

The pilot-vessel "SHARON ALEXANDER" has a centrally located wheel-house which affords working areas on the forward and after decks. These areas are fitted with safety railings. There is access to the forward area by means of a walking deck space either side of the wheel-house.

The vessel underwent a quadrennial inspection by the Ship Safety branch of the Canadian Coast Guard March 11, 1987 and a SIC 22, issued April 7, 1987 was due to expire December 7, 1987.

NOTE: 1) All times mentioned in this report are expressed in Atlantic Standard Time (UTC minus 4 hours).

2) A Glossary of terms and abbreviations can be found following the Findings of this report.

Background

The "GENERAL BONIFACIO" was on a voyage from Pugwash to Mulgrave, Nova Scotia, with a part-cargo of salt.

Upon her approach to the pilot-boarding-station in St. Georges Bay, the vessel was requested to give the pilot-vessel a lee in the gale conditions by leaving her port side to windward.

As the pilot was attempting to board from the pilot-vessel, he suddenly fell from the pilot-ladder and entered the water between the two vessels.

Although the pilot was observed on three occasions from the pilot-vessel and a lifebuoy was thrown to him, he subsequently disappeared. An intense search was conducted throughout the ensuing 14 hours until the body was eventually located and taken aboard the CSS "DAWSON".

The initial incident occurred in position 45°42'18"N, 61°29'30"W and the body was located in position 45°49'31"N, 61°32'24"W, some 7.5 miles from the original position and 2 miles from the shore.

Deceased

Michael Sydney Smith
Age 51
Port Hastings, Nova Scotia

Narrative

The Philippine bulk carrier "GENERAL BONIFACIO" departed from Pugwash, Nova Scotia, at 0930, November 20, 1987 bound for Mulgrave, Nova Scotia. The vessel was partly laden with 6,740 tonnes (7,431 short tons) of rock salt evenly distributed in all four holds.

The departure draught was 7.18 m forward, aft and mean,

indicating a mean freeboard of 3.84 metres.

The weather conditions at noon were logged as being overcast with showers, light easterly breeze with slight seas and good visibility. The barometric pressure was 102.39 kPa and the air temperature, +7°C.

The vessel maintained an easterly course until 1712 when Cape George was abeam. At that time, the course was altered to 127°T as the vessel headed, in a separated traffic zone, for Canso pilot station.

At 1700, an updated ETA had been communicated to the pilot-dispatch office at Mulgrave and the pilot-vessel "SHARON ALEXANDER" was dispatched from the Government wharf, Port Hawkesbury, at 1800, with one pilot and two crew members on board.

The weather conditions at 1900 were reported to be overcast with frequent heavy rain, reducing the visibility in darkness to virtually zero, south-easterly winds of 50 to 60 knots and accompanying rough sea and heavy swell. In these conditions it had become dark at about 1645.

At 1910, communications with the "SHARON ALEXANDER" were established on VHF radiotelephone, Channel 14, and the master of the "GENERAL BONIFACIO" was requested to alter course to starboard to provide a lee for the pilot-vessel. This request was carried out with the vessel now on reduced pitch, moving ahead at an estimated 3 to 4 knots.

A pilot-ladder, man-ropes and cargo-light were rigged at the starboard railing of the main deck, immediately forward of and adjacent to a railing-gate which was open for this boarding. A lifebuoy with line was placed in readiness, adjacent to the boarding station, and the area was manned by a deck officer and an AB. A searchlight atop the wheel-house was turned on and directed on the pilot-ladder.

On the bridge at this time were the master, the OOW, a quartermaster and a supercargo officer. The supercargo officer was standing at the extreme starboard side of the bridge-wing overlooking the boarding area and the pilot-vessel.

At 1920 as the pilot was about to ascend the pilot-ladder, he suddenly plunged into the water, falling between the "GENERAL BONIFACIO" and the "SHARON ALEXANDER".

The propellers of both vessels were stopped and as the wind carried the pilot-vessel clear of the "GENERAL

BONIFACIO", the deck-hand on the pilot-vessel sighted the pilot, who was wearing an orange floater jacket. The pilot-vessel was turned short-around and manoeuvred close to the pilot. A lifebuoy with an attached strobe light and line was thrown to a position within 4 m of the pilot but he made no effort to reach the lifebuoy. The pilot-vessel meanwhile had been adversely affected by the gale-force wind and was carried to leeward away from the pilot. A second turn was made and the pilot was again spotted and another lifebuoy with line was thrown to a position within 1.5 m of the pilot. Again, he made no attempt to reach the lifebuoy. In fact, the pilot was observed to be on his back with his arms open and horizontal, angled 90° at the elbows and his legs horizontal with his feet protruding above water.

The second lifebuoy was retrieved and the pilot-vessel then made a third circle and the pilot was observed in the same state of flotation as on the second sighting. The lifebuoy was thrown and came within arms-length of the pilot but, once again, no effort was made to reach the lifebuoy. On this last swing, the pilot was reported to be within 1.8 m of the pilot-vessel but any efforts to retrieve him were reportedly negated due to the violent motion of the pilot-vessel and the possibility of somebody else going overboard.

The three sightings were made within an approximate time span of five minutes but, the body was not sighted again until some 14 hours later. The pilot dispatch at Mulgrave was notified of the incident by the "SHARON ALEXANDER" at 1950 and CGRS Sydney (VCO) was similarly advised by pilot dispatch at 2001.

The Canadian Survey Ship (CSS) "DAWSON" took immediate steps to join the search and, upon arrival in the area, assumed the position of on-scene commander (OSC) with the tug "POINT VIKING", the "SHARON ALEXANDER" and the "GENERAL BONIFACIO" engaged in a search.

Between 1945 and 2000, the radar units aboard the "GENERAL BONIFACIO" were rendered inoperable and, shortly afterwards, the vessel was assisted out of the area by CSS "DAWSON" and advised to proceed clear of the search area and the traffic separation lanes. At 2315, the vessel anchored in position 45°47'48"N, 61°38'12"W.

At 2232, a lifebuoy was located in position 45°43'54"N, 61°32'48"W. The "SHARON ALEXANDER" was released from the search area at 2315 due to the inclement weather conditions and at 2340, the "POINT VIKING" was likewise released. CCGS "SIR WILLIAM ALEXANDER" arrived on-scene at 2355 and assumed a search pattern whilst CSS "DAWSON" stood by at the lifebuoy

until dawn. The body was subsequently located by CSS "DAWSON" at 0925, November 21, and taken into Canso Lock where it was handed over to the RCMP.

Analysis

1. Environment conditions

The waters around Nova Scotia were adversely affected by an intense low pressure system which moved rapidly from the Carolina coast to the Georges Bank area on the afternoon of November 20, across Prince Edward Island overnight and into Labrador on the morning of November 21.

A gale warning was issued for all marine areas at 0045, November 20, with a subsequent warning to mariners to monitor bulletins regarding the low pressure system as 'potential exists for this low to undergo explosive deepening as it crosses Georges Bank, giving storm force winds'.

A marine area forecast for Northumberland Strait issued at 1700, November 20, stated in part:

> Gale warning continued. Winds southeasterly 15 to 25 knots, increasing to east gales 35 to 45 this evening ... gales diminishing to south-westerly winds 15 to 25 overnight ... rain and mist ending overnight. Visibility near one in rain and mist. Temperatures near eight ...

Weather reports from various stations in and around the search area of St. Georges Bay (see Annex 1) indicated that the low pressure system passed through the area during the period of the search and was effective in forcing two of the search vessels to withdraw from the area.

The seawater temperature in the vicinity of the pilot-station, as recorded by the seawater intake aboard the "GENERAL BONIFACIO", was +7°C.

In water of that temperature, a conscious person without thermal protection such as an immersion suit or a PFD with good thermal protection, would be unable to help themselves after some 45 minutes in the water and after approximately an hour and 45 minutes, the chances of survival would be slim, if rescued. (See Appendix 2.)

2. Pilot ladders

The "GENERAL BONIFACIO" carried two pilot-ladders of 2.4 m and 4.83 m length respectively. The shorter ladder consisted of eight steps, the fifth from the bottom being a spreader, constructed of hardwood and secured horizontally in 60 mm polypropylene rope, properly seized. The steps were 480 mm long, 115 mm wide and 25 mm in depth and were equally spaced 34 mm apart. The spreader was 1.78 m in length, 115 mm wide and 25 mm in depth.

These dimensions comply with the requirements of Regulation 17 of the IMO regulations, governing pilot-ladders, as promulgated under the International Convention for the Safety of Life at Sea (1986) (see Annex 3); however, the side ropes are required to be manila rather than synthetic.

The longer ladder consisted of 13 steps of similar dimensions to the shorter ladder and had spreaders fitted between the fourth and fifth steps and between the eighth and ninth steps. There were five steps beneath the lowest spreader, the last four of which were made of rubber.

The pilot-ladder regulation requires the lowest spreader to be the fifth step from the bottom.

The "GENERAL BONIFACIO" had a freeboard of 3.84 m and the "SHARON ALEXANDER" had a freeboard of 1.97 m so the required pilot-ladder length in static conditions would be 1.87 metres. However, the regulations require that the ladder be of sufficient length to reach the water from the point of access to the ship with an allowance for an adverse list of 15°. The required ladder length at a mean draught of 7.18 m would therefore be 3.97 metres.

The shorter of the two ladders was in use on this occasion and was secured with a clove-hitch and two half-hitches at the top railing of the main deck guard-rails immediately adjacent to the point of entry to the deck.

Two manropes, of 80 mm circumference and 3.1 m length, were secured either side of the pilot-ladder; a cargo cluster-light was rigged at the rail-top and a lifebuoy with a line was on deck at the point of embarkation.

3. Sequence of events

At approximately 1910, the "SHARON ALEXANDER" communicated with the "GENERAL BONIFACIO" and requested that the pilot vessel be afforded a lee on the starboard side of the "GENERAL BONIFACIO". To comply with this request, the engine controls were brought to slow ahead, the helm put to hard-a-starboard and the bow thruster activated to assist the starboard swing against the south-easterly gale.

With the wind approximately 30° on the port bow, the pilot-vessel approached the "GENERAL BONIFACIO". When the vessels were between one and two metres apart, a heavy spray swept across the pilot-vessel, causing the pilot to retract from the open-deck area on the port side of the wheel-house. As the pilot-vessel nudged alongside the "GENERAL BONIFACIO", the deck-hand on the pilot-vessel lifted the excess pilot-ladder from between the two vessels which were now moving ahead synchronously at approximately 3 knots.

It is considered that the weather/sea conditions were very poor, but the pilot vessel had operated in similar conditions in the past. The decision to board or not would in any case, be taken by the pilot.

There is conflicting testimony as to the sequence of events which followed.

One version is that the pilot grasped the pilot-ladder with both hands and with one foot on the ladder, he went to the next highest step with the other foot and suddenly let go of the ladder with both hands, falling between the two vessels.

Other witnesses state that the pilot held the ladder with his left hand and placed his right foot on the ladder. As he was about to follow through with his right hand and left foot, the pilot-vessel was lifted on a swell and then fell into a trough, at which time, the pilot fell between the two vessels.

In the prevailing weather conditions, it is inconceivable that a pilot with 14 years experience, would not wait for the rising swell, take a firm hold with both hands, and then ascend the ladder with both feet.

Using this method of boarding in accordance with the normal practice, it is possible that both hands were on the ladder but only one foot. As the pilot-vessel fell

away, with only foot on the ladder and the other perhaps in the process of ascending, the body tendency would be to slew with the weight dependent on the arms and hands.

As both vessels were moving ahead with the break of the foredeck of the pilot-vessel snug up to the hull of the "GENERAL BONIFACIO", the two vessels would be apart from the break to the stern, with the distance apart increasing towards the after end. The pilot started his ascent from a position abeam of the forepart of the wheel-house just abaft the break of the foredeck.

Consequently, if he slewed to the left, he would have fallen through a clear separation of the two vessels and into the water.

4. Search and Rescue

When the pilot fell into the water, the propellers of both vessels were stopped. The pilot was sighted almost immediately by those aboard the pilot-vessel and a lifebuoy fitted with reflective tape, a strobe light and a line was thrown to within 4.5 m of the pilot. No attempt was made by the pilot to reach the lifebuoy.

As the pilot-vessel was affected by the weather conditions, a circle was made and the pilot was again sighted. A second lifebuoy was thrown to within 1.5 m of the pilot but again, there was no response. The lifebuoy was hauled back aboard the "SHARON ALEXANDER" by its line and thrown a third time, drifting within 1 m of the pilot who made no effort to reach it. The pilot was not seen again by the crew of the pilot-vessel.

At 1940, pilot-dispatch at Mulgrave was advised of the incident by the "SHARON ALEXANDER" on VHF radiotelephone, channel 14. The "SHARON ALEXANDER" then conversed with the "GENERAL BONIFACIO" regarding searching arrangements. This call was monitored by CSS "DAWSON" which was conducting a scientific survey programme three miles north-west of the pilot-station. The master of CSS "DAWSON" immediately ordered the retrieval of all scientific equipment.

At 2000, CGRS Sydney (VCO) was advised of the incident by pilot-dispatch, Mulgrave. A telephone call was made to RCC, Halifax by VCO and RCC advised that in view of an ongoing Mayday originating from CGRS Halifax (VCS), VCO should broadcast a PAN message on VHF R/T only. Also at 2000, the tug "POINT VIKING", having monitored the call to VCO, departed from the government wharf at

Port Hawkesbury to assist in the search.

At 2006, all scientific equipment had been recovered by the "DAWSON" and that vessel headed towards the pilot station at maximum speed, at the same time, advising the "SHARON ALEXANDER" of her intention to assist in the search for the missing pilot.

At 2013, a PAN message was broadcast by VCO following which, the "DAWSON" advised VCO of her position and intentions. The "DAWSON" arrived on-scene at 2024 and at 2030, she was advised by the "GENERAL BONIFACIO" that that vessel was uncertain of her position due to a radar failure. After assessing the situation, it was decided that due to her size, lack of manoeuvrability, the confined waters and prevailing weather conditions, the "GENERAL BONIFACIO" should withdraw from the search area and proceed seaward. This she did and later came to anchor well clear of the area.

At 2017, CCGS "ALEXANDER MACKENZIE" advised VCO that she was proceeding to the search area with a barge in tow and gave an ETA of 3 hours. This vessel later established communications with CSS "DAWSON".

At 2043, RCC dispatched Buffalo aircraft R453 to the search area but at 2051, when this aircraft had conversed with the "DAWSON", now OSC, it was decided that, due to the existing weather conditions including winds up to 60 knots and a low cloud ceiling, the aircraft would be of little use. The aircraft did in fact attempt to penetrate but at 305 m, was advised not to descend any further. The R453 departed the area at 2124.

The "SHARON ALEXANDER", "POINT VIKING" and the "DAWSON" continued a formation search pattern and at 2232, the lifebuoy launched by the "SHARON ALEXANDER" was located by the "POINT VIKING". A circular search pattern around the lifebuoy and the nearby Cape Jack light and bell buoy revealed no sign of the missing pilot.

Upon completion of this particular search pattern, during which time the "SHARON ALEXANDER" had been rolling and pitching violently, the OSC released the "SHARON ALEXANDER" and escorted her back to the pilot-station from whence she returned to the government wharf at Port Hawkesbury arriving there at 0130, November 2.

At 2250, the "ALEXANDER MACKENZIE" advised the "DAWSON" of an amended on-scene ETA of 0100, November 21. The

"DAWSON" returned to the "POINT VIKING" and resumed a downwind search pattern.

At 2340, the "POINT VIKING" was released due to the inclement weather conditions and she returned to the government wharf at Port Hawkesbury.

CCGS "ALEXANDER MACKENZIE" arrived in the area at 2355 with a barge in tow and was directed by the OSC to conduct a search pattern. Meanwhile, the "DAWSON" maintained station with the lifebuoy, monitoring its drift whilst making a searchlight search of the area.

At 0530, November 21, the lifebuoy was recovered as it was about to drift on to a shoal area.

At 0815, Buffalo aircraft R457 was on-scene and directed to conduct a shore-line search.

The body of the pilot was sighted by the "DAWSON" at 0916, retrieved at 0935 and landed at Canso at 1120, November 21 to the care of the RCMP.

Throughout the SAR task, frequent communications were made with VCO on VHF radiotelephone, channel 16 and 2103.5 kHz.

The search vessels and their individual involvement times and distances were:

413 Squadron Buffalo Aircraft Rescue 453		1.3 hrs.	
413 Squadron Buffalo Aircraft Rescue 457		1.7 hrs.	
BIO	CSS "DAWSON	15.0 hrs.	51 miles
CCG	CCGS "ALEXANDER MACKENZIE"	9.5 hrs.	75 miles
APA	P/V "SHARON ALEXANDER"	3.8 hrs.	15 miles
ECT	Tug "POINT VIKING"	3.0 hrs.	15 miles
FSI	"GENERAL BONIFACIO"	1.8 hrs.	

5. **Effect of wind and tide**

The times of high and low water at Auld's Cove and Cape Jack were as follows:

	HW	LW	HW
Auld's Cove	20 1958	21 0304	21 0928
Cape Jack	20 1918	21 0213	21 0848

At the western end of Canso Strait and into St. Georges Bay, the tendency is for a northerly set during the ebb tide and southerly during a flood tide.

From the time the lifebuoy was launched from the "SHARON ALEXANDER" until its sighting by the "POINT VIKING", it had drifted north-west, 2.8 miles at a rate of approximately 0.8 knots. It then drifted in a general northerly direction at the same rate.

The body appears to have drifted in a north-north-westerly direction at a rate of approximately 0.5 knots.

6. **History of the deceased**

a. Professional

Michael Smith obtained his Master's Foreign-Going Certificate in London, England in 1963 and subsequently emigrated to Canada. He completed a Radar Observer course at CFB Halifax in June 1971 and Radar Simulator course at the Nova Scotia Nautical Institute in 1975.

He commenced pilotage duties with the Halifax Pilotage Authority in 1971 and obtained his Class A license as pilot, issued under seal of the Atlantic Pilotage Authority, in 1973. This certificate authorized pilotage duties on any vessel operating in the Sydney Harbour, Bras d'Or Lakes and Strait of Canso zones.

He was considered by his peers to be a conscientious, hard working, professional mariner who had a distinct regard for safety.

b. Hours of work

A system of one week on and one week off is worked by the pilots with their work week commencing and ending at 1200, Friday. During the regular work week of November 6-13, 36 hours were spent in the involvement of pilotage duties. In addition, several phone calls were made to and from pilot-dispatch during the quiet hours.

The week of November 13-20 was a regular week off for Captain Smith. Due to workload however, he was recalled at 0415 and after piloting three vessels, returned home at 1615. He was recalled at 2000 to pilot another vessel and this act of pilotage (turn) was completed at 0415, November 16.

A further recall was made at 0130, November 17 and this turn was completed at 0800.

The final recall of the week was made at 0445, November 19, when the "GENERAL BONIFACIO" was piloted northbound through Canso Strait. The turn was completed at 1100.

Returning to regular duty at noon, November 20, Captain Smith was advised at 1700 of the expected arrival of the "GENERAL BONIFACIO" at 1900.

c. Previous similar incidents involving the deceased.

Captain Smith survived two previous pilot-ladder occurrences before this accident which claimed his life.

1) On January 5, 1974 he was ascending the pilot-ladder of the "GYPSUM QUEEN" at Sydney outer fairway-buoy pilot-station. There was a strong westerly wind at the time with a heavy northerly swell and freezing spray.

Either due to the ice on the vessel's hull or to the fact that there was no spreader fitted to the pilot-ladder, the ladder twisted and caused Captain Smith to lose his grip. As he fell into the water he struck the gunwale of the pilot-vessel.

Two persons on the pilot-vessel managed to clutch his clothing while he clung to a rubber tyre fender. Captain Smith was pulled from the water after reportedly being partially immersed for 10 minutes.

A subsequent medical report revealed that Captain Smith had sustained a cracked rib and multiple contusions over the arms, legs and thorax. He was off work for 11 days.

On Friday, October 31, 1986 while disembarking from the "ALGOPORT" off Sydney, in very rough

seas and a heavy swell with north-westerly winds of 40 knots, Captain Smith was hanging on to the pilot-ladder for approximately 15 minutes awaiting the pilot-vessel. He had deliberately jammed his left arm between the pilot-ladder and the hull of the vessel to prevent falling as the vessel was rolling heavily. When he was eventually able to board the pilot-vessel, his left arm was apparently badly strained and bruised. He did not visit his doctor during the following week, which was his regular week off, assuming that the arm would heal. However, he found it necessary to visit his doctor November 6 and was told not to return to work for a further two weeks.

Due to a shortage of pilots, he was recalled that same day and, after initially refusing, agreed to board the vessel if she was of low freeboard. As it transpired, there were only two steps to climb aboard the "WHITTSAND". He remained off duty until recalled November 16 and, as he felt that his arm was better, he completed that particular pilotage and any assigned to him thereafter.

d. Health

An exceptional aspect of this particular report is the inclusion of a detailed medical history of the deceased. It has been included due to its relevance to possible cause.

At the time of the accident Captain Smith was considered to be in reasonable health although overweight at 86 kg for his height of 167 cm. Medical opinion cites an ideal weight of between 63 and 73 kg for a male of this height and build.

Since 1974, and up to the time of his fatal accident, Captain Smith had experienced various health problems which necessitated several periods of sick leave.

The most frequent cause of these sick leaves, reportedly on about 9 separate occasions, was recurrent lateral epicondylitis (tennis elbow) in both arms.

During this period Captain Smith also suffered from

back, leg and renal trouble at different times. Acute anxiety was also diagnosed on two occasions. All of the above required periods of sick-leave of varying duration.

Epicondylitis is defined in the Mosby Medical Encyclopedia as 'a painful and sometimes disabling swelling of the muscle and tissues of the elbow. It is caused by repeated strain on the forearm'. Expanded definitions form part of Annex 5.

According to medical advice, epicondylitis can remain dormant for some time and then suddenly re-manifest itself. The particular type of grasping, required of pilots boarding by an overside ladder, could aggravate the condition.

An obligatory APA medical examination was conducted on February 12, 1986. Reference was made in the report to a kidney stones occurrence 2 to 3 years previously and to lateral epicondylitis of both elbows - a recurrent problem with severe activity. The notation 'obese' appeared in the assessment area.

Subsequent to the examination Captain Smith was permitted to carry out his function as a pilot.

On September 8, 1987 a new Collective Agreement was signed by the APA and the Canadian Merchant Service Guild. Clause 8.07 of that agreement spelled out the right of the APA to have their marine personnel undergo an annual medical examination. (See Annex 4). Pursuant to this clause, a letter was sent to Captain Smith by the APA on November 3, 1987 requesting that a medical examination be completed by December 31, 1987.

At the time of this tragedy this examination had still to be undertaken.

f. <u>Appearance before this assignment</u>

Although they had no medical background, some of those who saw Captain Smith prior to him embarking the pilot-vessel on November 20, 1987, commented on his appearance of poor health. It was also apparent to some of these same people that Captain Smith was unable to effect a firm grip with his hands.

g. Autopsy

The autopsy report was unremarkable except for several areas of traumatic injury to the face being noted; these were considered to reflect a blow in an upward direction. The cardio-vascular system was considered normal. Death was judged as being consistent with drowning.

No determination of the extent of lateral epicondylitis in the victims arms was made during the autopsy.

Captain Smith was not seen to strike either vessel but it is evident that, in his fall into the sea, he hit his face and sustained injury.

7. Apparel

The pilot was wearing an orange floater jacket and this assisted in his being sighted in the water. The jacket had no crotch strap and appeared to have been kept on the body in the water by virtue of a portable radio diagonally strapped across the chest.

In addition to the orange floater jacket, his other clothing included dark pants, a pair of gloves and headgear. He wore no strobe, or other form of emergency position indicating light.

He was wearing lace-up rubber soled nylon boots, with a good tread.

8. A previous loss

On March 30, 1985, a pilot of the Pacific Pilotage Authority fell from the pilot-ladder whilst disembarking from a Panamanian bulk carrier. Although he apparently struck his head on the gunwale of the pilot-vessel, there was an indication of consciousness when he was first sighted in the water.

The design of certain pilot-vessels operating in the waters of British Columbia, includes a three man crew and a recovery ramp at the stern. (See Annex 6.)

This ramp was used in efforts to recover the pilot from the sea and although successful to the degree of its intent, when two crew members were endeavouring to haul the now unconscious pilot from the water on to the lowered recovery ramp by holding on to his floater

jacket, the jacket inverted and came free and the pilot was lost. His body was never recovered.

As a result of that particular tragedy, the floater jackets worn by the pilots and crew members of the west coast pilot-vessels were fitted with straps which would secure the jacket firmly to the body and thus prevent them from inverting.

In good weather conditions, the retrieval ladder already affixed to the stern of the "SHARON ALEXANDER", would probably be adequate but such conditions on the east coast are rare.

The APA had previously recognized the problem of losing pilot-vessel personnel overboard and is currently in the process of conducting a series of recovery exercises and a study in the use of a harness arrangement.

9. Pilot vessel

The "SHARON ALEXANDER" is a Class XI Non-Safety Convention vessel able to conduct voyages of HT III classification, being not more than 20 miles off-shore and not more than 100 miles between ports of refuge.

In addition to the electronic and navigating equipment outlined elsewhere in this report, she carried the following equipment in compliance with the Lifesaving Regulations:

- Four approved lifejackets
- Two lifebuoys, each equipped with a line and a strobe light
- Four immersion suits
- One 6-person Seafarer Dunlop liferaft
- One 6-person Beaufort liferaft

10. Personnel

The master of the "GENERAL BONIFACIO" holds a Master Mariner's Certificate and has been at sea for 23 years including 11 years as master.

The master of the "SHARON ALEXANDER" holds a valid renewable Small Passenger-Craft Master's Certificate and a Restricted Radiotelephone Operator's Certificate

(Maritime). He has been at sea for 35 years including 5 years as small craft master.

The deck-hand of the "SHARON ALEXANDER" has been at sea for 30 years. He does not hold a certificate nor is he required to by regulation.

Findings

A pilot, attempting to board the bulk carrier "GENERAL BONIFACIO", fell from the pilot-ladder into the water between the bulk carrier and the pilot-vessel. Efforts to retrieve the pilot, in adverse weather conditions and during darkness, were to no avail and he subsequently disappeared, his body being found later.

It would appear that the following factors contributed to this death:

- the pilot had a history of lateral epicondylitis in both arms (tennis elbow);
- the pilot had a history of other stress and physical problems - including being overweight;
- he struck his head prior to entering the water and probably rendered himself unconscious;
- no effort was made by the pilot to reach lifebuoys thrown closely to him;
- no emergency position indicating light was worn by the pilot, nor is this local practice; and
- weather conditions were so adverse that, in the darkness, it proved impossible for the pilot-vessel to track and recover a person who was unable to help himself.

Other Findings

The deceased had fallen from a pilot-ladder 13 years previously, spending 10 minutes partially immersed in frigid waters.

The deceased was suspended from a pilot-ladder for 15 minutes approximately 12 months earlier sustaining a badly bruised and strained elbow.

Due to workload, Captain Smith had been recalled to work

during his regular off-duty period.

Regular medical reports to the Atlantic Pilotage Authority did not indicate cause for concern with regard to the mental or physical condition of the deceased.

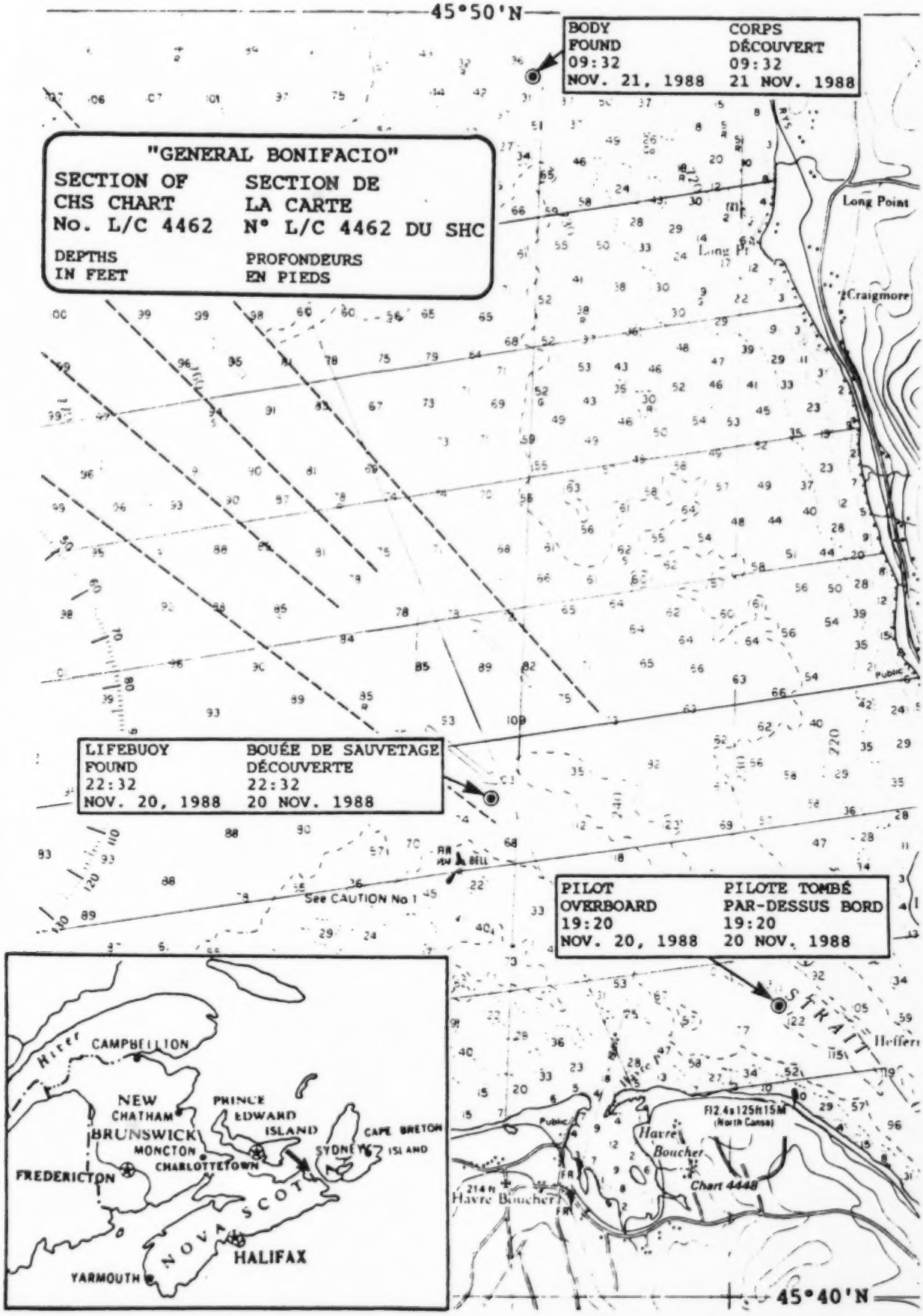
Once out of the lee of the "GENERAL BONIFACIO", weather conditions were such that the pilot-vessel was in some jeopardy herself.

In the prevailing conditions the rescue response by the various vessels was exemplary.

OTTAWA, ONTARIO
MAY 1988.

Glossary

APA	Atlantic Pilotage Authority
BIO	Bedford Institute of Oceanography
CCGS	Canadian Coast Guard Ship
CGRS	Coast Guard Radio Station
CSS	Canadian Survey Ship
ECT	Eastern Canada Towing Limited
Freeboard (in context)	Distance from waterline to main deck
FSI	Filscon Shipping Incorporated
Gunwale	Upper edge of the vessel's side
Lee	Away from the weather (side)
OOW	Officer of the Watch
PAN	A spoken urgency signal which has priority over all broadcasts with the exception of Mayday
PFD	Personal flotation device
RCC	Rescue Coordination Centre
SIC	Safety Inspection Certificate
SSB R/T	Single sideband radiotelephone
Supercargo	A person appointed by the shipowner (in this case) to manage the loading, stowage and discharge of the cargo and (again, in this case) responsible for the maintenance and upkeep of all cargo equipment and machinery
UTC	Coordinated Universal Time
VHF R/T	Very high frequency radio-telephone


45°50'N
BODY FOUND 09:32 NOV. 21, 1988
CORPS DÉCOUVERT 09:32 21 NOV. 1988
"GENERAL BONIFACIO"
SECTION OF CHS CHART No. L/C 4462
SECTION DE LA CARTE N° L/C 4462 DU SHC
DEPTHS IN FEET
PROFONDEURS EN PIEDS
Long Point
Craigmore
LIFEBUOY FOUND 22:32 NOV. 20, 1988
BOUÉE DE SAUVETAGE DÉCOUVERTE 22:32 20 NOV. 1988
See CAUTION No 1
PILOT OVERBOARD 19:20 NOV. 20, 1988
PILOTE TOMBÉ PAR-DESSUS BORD 19:20 20 NOV. 1988
CAMPBELLTON
NEW BRUNSWICK
CHATHAM
PRINCE EDWARD ISLAND
CAPE BRETON ISLAND
MONCTON
CHARLOTTETOWN
SYDNEY
FREDERICTON
NOVA SCOTIA
HALIFAX
YARMOUTH
STRAIT
Havre Boucher
Fl2.4s12M15M
(North Canso)
Chart 4448
45°40'N

Weather observations at the time of the accident

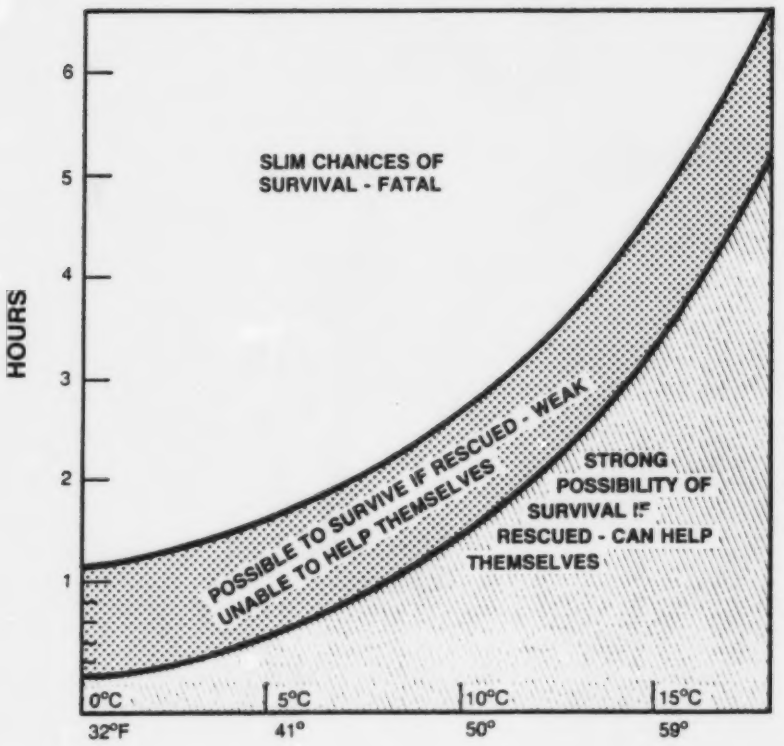
ANNEX 1

Time	Vessel	Wind	Baro	Air	Sea Water	Vis	Remarks
201900	"GENERAL BONIFACIO"	135° 28G40	1002	+ 7°	+ 7°		
	"DAWSON"	110° 50G70					
	VGR	110° 24G32	1004	+ 4°		6 Rain fog	
2000	"GENERAL BONIFACIO"	135° 34G47	998	+ 7°	+ 7°		Rough sea with foam
	"DAWSON"	135° 50G70	992			3.5	Rough sea, heavy spray moderate swell
	YGR	100° 30G40	999.7	+ 5°		3 Rain fog	
	"ALEXANDER MACKENZIE	090° 30G60	991	+ 7°		Rain	Rough sea, blowing spray
2200	"GENERAL BONIFACIO"	135° 34G47	995	+ 7°			
	"DAWSON"	165° 40G60				3.5	Rough sea, moderate swell, heavy spray
	YGR	110° 38G52	992.1	+ 5°		3 Rain fog	

Time	Vessel	Wind	Baro	Air	Sea Water	Vis	Remarks
2400	"DAWSON"	205° 35G45	987	+11°	+10°	5 Cont. rain	Rough/Moderate sea swell
	"ALEXANDER MACKENZIE"	135° 40G50	987			Rain	Rough sea, blowing spray
	"GENERAL BONIFACIO"	180° 34G47	993	+8°			Rough sea
210200	"DAWSON"	190° 15G20	993.2			10	
210200	"DAWSON"	190° 15G20	993.2				
	"GENERAL BONIFACIO"	200° 22G27	996			10	Moderate sea and swell
0400	"DAWSON"	215° 10G15	996	+8°	+8°	10	Light sea and swell
	"GENERAL BONIFACIO"	200° 11G16	1000	+11°			
	"ALEXANDER MACKENZIE"	200° 15	998	+9°			
0600	"DAWSON	180°5-10				20	Light sea and swell
	"GENERAL BONIFACIO"	200° 7-10	1000	+ 11°			
0800	"DAWSON"	170° 5-10		+ 6°	+8°	20	Light sea and swell
	"GENERAL BONIFACIO"	180° 6	1001	+8°			Slight sea
	"ALEXANDER MACKENZIE"	135° 10	998	+7°			

ANNEX II

COLD WATER SURVIVAL



WATER TEMPERATURE

The accompanying graph shows average predicted survival times of average, adult humans in water of different temperatures. The figures are based on experimental cooling of average men and women who were holding still in ocean water and wearing a standard lifejacket and light clothing. The graph shows, for example, that predicted survival time is about 2½-3 hours in water of 10°C (50°F). Predicted survival time is increased by extra body fat and decreased by small body size. Although women generally possess slightly more fat than men they cool slightly faster due to their usually small body size. However, for comparable sizes, the man will cool faster.

"COLD WATER SURVIVAL"
CANADIAN RED CROSS

ANNEX III

INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA

CONSOLIDATED TEXT OF

THE 1974 SOLAS CONVENTION
THE 1978 SOLAS PROTOCOL
THE 1981 AND 1983 SOLAS AMENDMENTS

IMO
London, 1986

Regulation 17

Pilot ladders and mechanical pilot hoists

Ships engaged on voyages in the course of which pilots are likely to be employed shall comply with the following requirements:**

(a) *Pilot ladders*

(i) The ladder shall be efficient for the purpose of enabling pilots to embark and disembark safely, kept clean and in good order and may be used by officials and other persons while a ship is arriving at or leaving a port.

(ii) The ladder shall be secured in a position so that it is clear from any possible discharges from the ship, that each step rests firmly against the ship's side, that it is clear so far as is practicable of the finer lines of the ship and that the pilot can gain safe and convenient access to the ship after climbing not less than 1.5 metres (5 feet) and not more than 9 metres (30 feet). A single length of ladder shall be used capable of reaching the water from the point of access to the ship; in providing for this due allowance shall be made for all conditions of loading and trim of the ship and for an adverse list of 15 degrees. Whenever the distance from sea level to the point of access to the ship is more than 9 metres (30 feet), access from the pilot ladder to the ship shall be by means of an accommodation ladder or other equally safe and convenient means.

(iii) The steps of the pilot ladder shall be:

(1) of hardwood, or other material of equivalent properties, made in one piece free of knots, having an efficient non-slip surface; the four lowest steps may be made of rubber of sufficient strength and stiffness or of other suitable material of equivalent characteristics;

(2) not less than 480 millimetres (19 inches) long, 115 millimetres (4½ inches) wide, and 25 millimetres (1 inch) in depth, excluding any non-slip device;

(3) equally spaced not less than 300 millimetres (12 inches) nor more than 380 millimetres (15 inches) apart and be secured in such a manner that they will remain horizontal.

(iv) No pilot ladder shall have more than two replacement steps which are secured in position by a method different from that used in the original construction of the ladder and any steps so secured shall be replaced as soon as reasonably practicable by steps secured in position by the method used in the original construction of the ladder. When any replacement step is secured to the side ropes of the ladder by means of grooves in the sides of the step, such grooves shall be in the longer sides of the step.

(v) The side ropes of the ladder shall consist of two uncovered manila ropes not less than 60 millimetres (2¼ inches) in circumference on each side. Each rope shall be continuous with no joints below the top step. Two man-ropes properly secured to the ship and not less than 65 millimetres (2½ inches) in circumference and a safety line shall be kept at hand ready for use if required.

(vi) Battens made of hardwood, or other material of equivalent properties, in one piece and not less than 1.80 metres (5 feet 10 inches) long shall be provided at such intervals as will prevent the pilot ladder from twisting. The lowest batten shall be on the fifth step from the bottom of the ladder and the interval between any batten and the next shall not exceed 9 steps.

(vii) Means shall be provided to ensure safe and convenient passage on to or into and off the ship between the head of the pilot ladder or of any accommodation ladder or other appliance provided. Where such passage is by means of a gateway in the rails or bulwark, adequate handholds shall be provided. Where such passage is by means of a bulwark ladder, such ladder shall be securely attached to the bulwark rail or platform and two handhold stanchions shall be fitted at the point of boarding or leaving the ship not less than 0.70 metre (2 feet 3 inches) nor more than 0.80 metre (2 feet 7 inches) apart. Each stanchion shall be rigidly secured to the ship's structure at or near its base and also at a higher point, shall be not less than 40 millimetres (1½ inches) in diameter and shall extend not less than 1.20 metres (3 feet 11 inches) above the top of the bulwark.

(viii) Lighting shall be provided at night such that both the pilot ladder overside and also the position where the pilot boards the ship shall be adequately lit. A lifebuoy equipped with a self-igniting light shall be kept at hand ready for use. A heaving line shall be kept at hand ready for use if required.

(ix) Means shall be provided to enable the pilot ladder to be used on either side of the ship.

(x) The rigging of the ladder and the embarkation and disembarkation of a pilot shall be supervised by a responsible officer of the ship.

(xi) Where on any ship constructional features such as rubbing bands would prevent the implementation of any of these provisions, special arrangements shall be made to the satisfaction of the Administration to ensure that persons are able to embark and disembark safely.

(b) *Mechanical pilot hoists*

(i) A mechanical pilot hoist, if provided, and its ancillary equipment shall be of a type approved by the Administration. It shall be of such design and construction as to ensure that the pilot can be embarked and disembarked in a safe manner including a safe access from the hoist to the deck and *vice versa*.*

(ii) A pilot ladder complying with the provisions of paragraph (a) of this regulation shall be kept on deck adjacent to the hoist and available for immediate use.

ANNEX IV

COLLECTIVE AGREEMENT

between

THE ATLANTIC PILOTAGE AUTHORITY

a Corporation established pursuant to Section 3 of the Pilotage Act, Statutes of Canada 1970-71-72, Chapter 52, hereinafter called the "Authority"

and

THE CANADIAN MERCHANT SERVICE GUILD

a Corporation established by special Act of Parliament assented to on the 6th day of June, 1919 hereinafter called the "Guild".

8.07 The Authority shall have the right to have all marine personnel medically examined annually. Such examinations shall be by a physician designated by Health and Welfare Canada and will be paid for by the Authority. A difference of opinion between the Health and Welfare physician and an employee's family doctor shall be resolved by a mutually acceptable specialist.

ANNEX V

Definition from

THE
MOSBY
MEDICAL
ENCYCLOPEDIA

epicondylitis /ep'ikon'dili'tis/, a painful and sometimes disabling swelling of the muscle and tissues of the elbow. It is caused by repeated strain on the forearm. This is commonly known as a sports-related injury called "tennis elbow." See also lateral humeral epicondylitis.

Current
Medical
Diagnosis &
Treatment 1986

Edited by Marcus A. Krupp, Milton J. Chartton,
Lawrence M. Tiemey, Jr.

EPICONDYLITIS
(Tennis Elbow, Epicondylalgia)

Epicondylitis is a pain syndrome affecting the mid portion of the upper extremity; no single causative lesion has been identified. It has been postulated that chronic strain of the forearm muscles due to repetitive grasping or rotatory motions of the forearm causes microscopic tears and subsequent chronic inflammation of the common extensor or common flexor tendon at or near their respective osseous origins from the epicondyles.

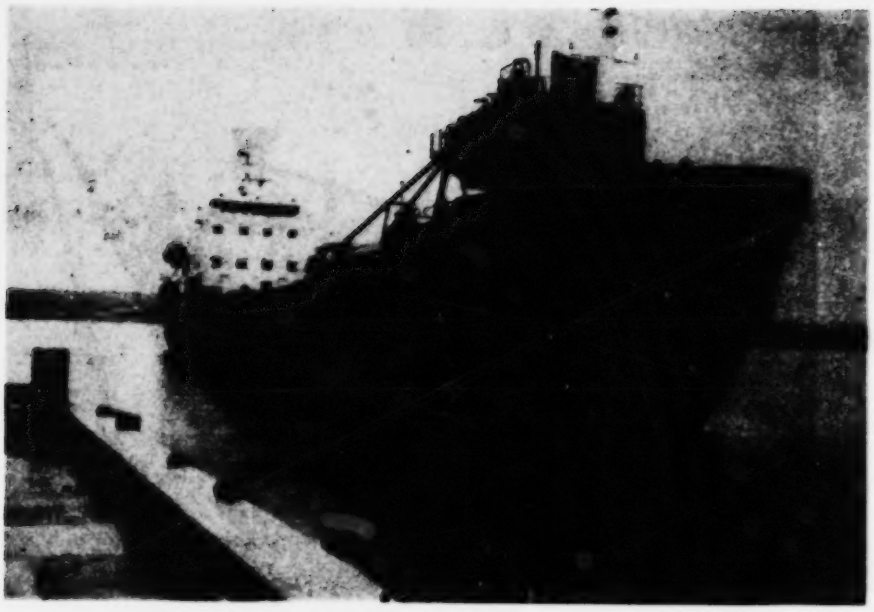
Epicondylitis occurs most frequently in the dominant extremity during middle life. Pain is predominantly on the medial or lateral aspect of the elbow region, may be aggravated by grasping, and may radiate proximally into the arm or distally into the forearm. The point of maximal tenderness to pressure is 1-2 cm distal to the epicondyle but may also be present in the muscle bellies more distally. Resisted dorsiflexion or volar flexion of the wrist may accentuate the pain. X-ray examination generally reveals no significant change.

Epicondylitis must be differentiated from other cervicobrachial pain disorders and entrapment syndromes as well as from arthritic diseases.

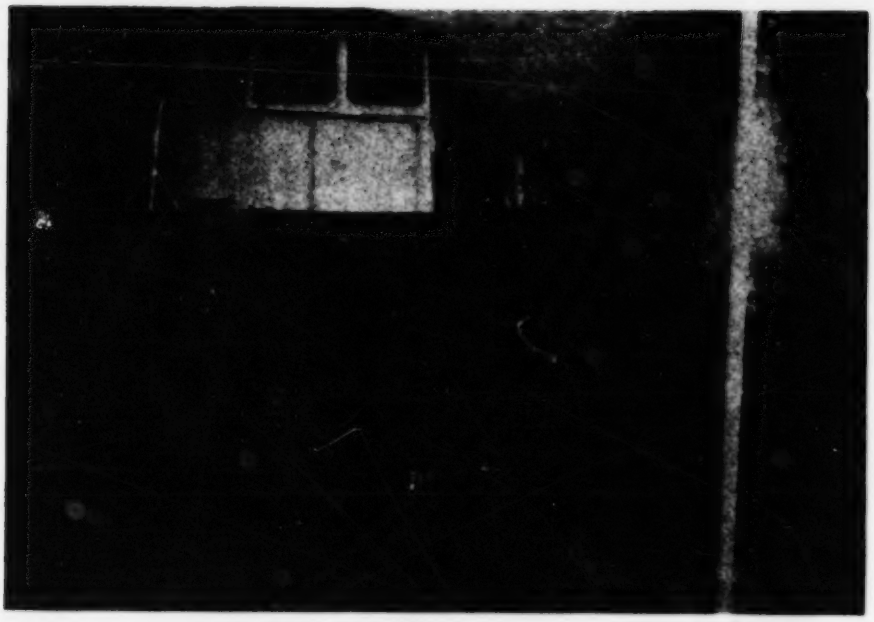
Treatment is directed toward relief of pain and tenderness. Most acute or subacute symptoms can be relieved by rest, mild analgesics, and avoidance of repetitive grasping. An elastic bandage applied firmly about the proximal forearm may temporarily ameliorate discomfort when the patient is grasping forcefully. Chronic symptoms may require restrictive immobilization such as that provided by an elbow brace or a volar plaster splint. Infiltration of "trigger points" by local anesthetic solutions with or without corticosteroids may be helpful. Operative treatment is reserved for severe, refractory cases.

Berson BL. McGinniss GH: Common tennis injuries. Hosp Med (April) 1983:19:122.

Van Rossum J et al: Tennis elbow: A radial tunnel syndrome? J Bone Joint Surg (Br) 1978:60:197.



"GENERAL BONIFACIO"



"SHARON ALEXANDER"

"SHARON ALEXANDER". Pilot disembarked adjacent to the letter 'P' in pilot.

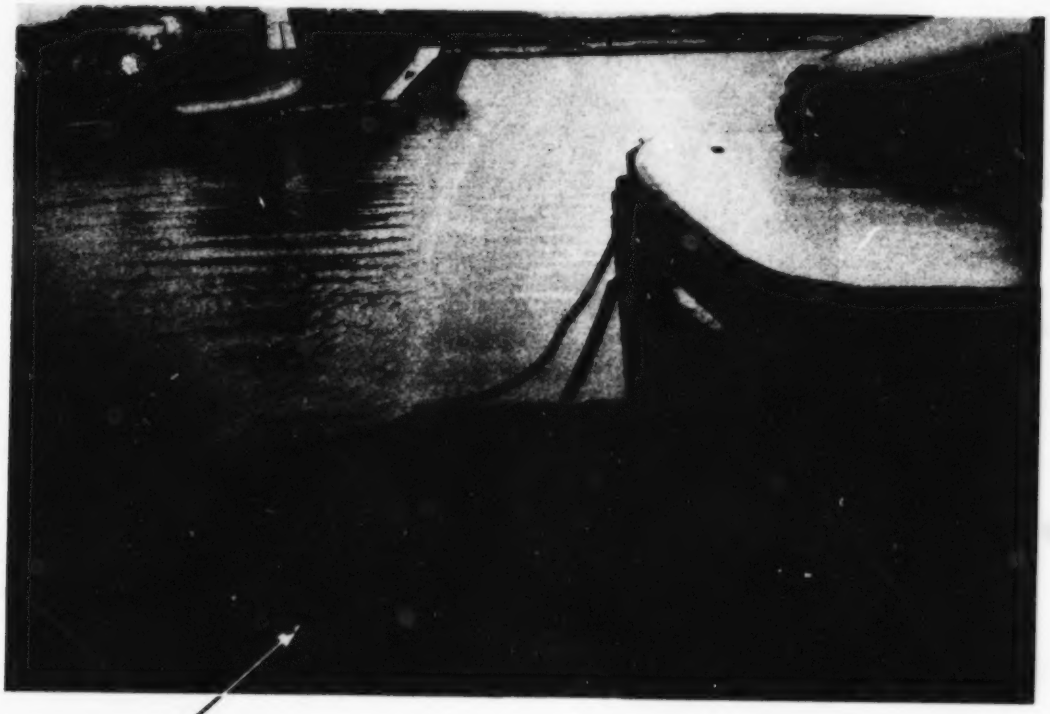
"SHARON ALEXANDER". Le pilote est débarqué près de la lettre 'P' en pilote.

"GENERAL BONIFACIO" pilot ladder.

"GENERAL BONIFACIO" échelle de pilote.

Pilot ladder rigged on "GENERAL BONIFACIO".
Échelle de pilote installée sur le "GENERAL BONIFACIO".

Securing method for pilot ladder.
Moyen d'arrimage de l'échelle de pilote.



"PACIFIC PILOT FOUR" recovery ramp.

Rampe de récupération du "PACIFIC PILOT FOUR".